

12/29/00
Cheney
George

Application No. 09/749,917
Attorney's Docket No. 015290-458
Page 2

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-13 (canceled)

Claim 14 (currently amended) A component of a plasma etch reactor, the component being selected from the group consisting of a plasma confinement ring, a focus ring, a pedestal, a chamber wall, a chamber liner and a gas distribution plate, the component having one or more surfaces exposed to the plasma during processing, the component comprising an as-sprayed plasma sprayed coating on a plasma exposed surface of the component, the coating having an as-sprayed surface roughness that promotes the adhesion of polymer deposits formed during etching of semiconductor substrates in the plasma etch reactor.

Claim 15 (original) The component of claim 14, wherein the component is made from a metallic material or a ceramic material.

Claim 16 (currently amended) A component of a plasma etch reactor, the component comprising aluminum having an anodized or non-anodized plasma exposed surface, the component comprising an as-sprayed plasma sprayed coating on a plasma exposed surface of the component, the coating having an as-sprayed surface roughness that promotes the

adhesion of polymer deposits formed during etching of semiconductor substrates in the plasma etch reactor.

Claim 17 (currently amended) A component of a plasma etch reactor, the component being made from a ceramic material selected from the group consisting of alumina, yttria, zirconia, silicon carbide, silicon nitride, boron carbide and boron nitride, the component having one or more surfaces exposed to the plasma during processing, the component comprising an as-sprayed plasma sprayed coating on a plasma exposed surface of the component, the coating having an as-sprayed surface roughness that promotes the adhesion of polymer deposits formed during etching of semiconductor substrates in the plasma etch reactor.

Claim 18 (canceled)

Claim 19 (original) The component of claim 14, wherein the coating is a ceramic or polymeric material.

Claim 20 (original) The component of claim 19, wherein the coating is a ceramic material selected from the group consisting of alumina, yttria, zirconia, silicon carbide, silicon nitride, boron carbide and boron nitride.

Claim 21 (currently amended) A component of a plasma etch reactor, the component having one or more surfaces exposed to the plasma during processing, the component comprising an as-sprayed plasma sprayed coating on a plasma exposed surface of the component, the component and the coating both comprising the same ceramic material selected from the group consisting of alumina, yttria, zirconia, silicon carbide, silicon nitride, boron carbide and boron nitride, and the coating having an as-sprayed surface roughness that promotes the adhesion of polymer deposits formed during etching of semiconductor substrates in the plasma etch reactor.

Claim 22 (original) The component of claim 20, wherein the coating has a thickness of 2 to 5 mils.

Allowed
Claim 23 (previously presented) A component of a plasma reactor, the component having one or more surfaces exposed to the plasma during processing, the component comprising an as-sprayed plasma sprayed polyimide coating on a plasma exposed surface of the component, wherein the coating has an as-sprayed surface roughness that promotes the adhesion of polymer deposits.

Allowed
Claim 24 (original) The component of claim 23, wherein the coating has a thickness of 10 to 30 mils.

Claim 25 (original) The component of claim 14, wherein the coating has an arithmetic mean surface roughness value (Ra) of from 150 to 190 micro-inches.

Claim 26 (currently amended) A plasma etch reactor comprising at least one component according to claim 14.

Claim 27 (currently amended) A method of processing a semiconductor substrate in the plasma etch reactor of claim 26, the method comprising contacting an exposed surface of a semiconductor substrate with a plasma.

Claim 28 (original) The method of claim 27, further comprising steps of:
positioning the substrate on a substrate support in the reactor;
introducing a process gas into the reactor;
applying RF energy to the process gas to generate a plasma adjacent an exposed surface of the substrate; and
etching the exposed substrate surface with a plasma.

Claim 29 (original) The method of claim 28, wherein the process gas comprises at least one polymer forming species.

Claim 30 (original) The method of claim 27, wherein the exposed surface of the substrate comprises a metallic material or an oxide.

Claim 31 (original) The method of claim 28, wherein the component is a gas distribution plate, the method further comprising introducing the process gas into the reactor through openings in the gas distribution plate.

Claim 32 (previously presented) The component of claim 14, wherein the component comprises a ceramic material.

Claim 33 (previously presented) The component of claim 14, wherein the coating is a polymeric material.

Claim 34 (currently amended) A component of a plasma etch reactor, the component having one or more surfaces exposed to the plasma during processing, the component comprising a coating formed by a process consisting essentially of plasma spraying a coating material on a plasma exposed surface of the component that has not been roughened, the coating being (i) a ceramic material comprising at least one material selected from the group consisting of yttria, alumina, zirconia, silicon carbide and boron carbide or (ii) a metallic material, the coating having an as-sprayed surface roughness that promotes the adhesion of polymer deposits formed during etching of semiconductor substrates in the plasma etch reactor.

Claim 35 (currently amended) The component of claim 14 16, wherein the coating is a ceramic material comprising at least one material selected from the group consisting of yttria, alumina, zirconia, silicon carbide and boron nitride.

Claim 36 (previously presented) The component of claim 14, wherein the coating is a metallic material.

Claims 37-38 (canceled)

Claim 39 (previously presented) The component of claim 34, wherein the coating has an arithmetic mean surface roughness value (Ra) of between 150 and 190 micro-inches.